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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,927	08/04/2003	Ryu Yokoyama	P/1909-163	4959

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EXAMINER

DIACOU, ARI M

ART UNIT PAPER NUMBER

3663

DATE MAILED: 04/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/633,927

Applicant(s)

YOKOYAMA, RYU

Examiner

Ari M. Diacou

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 11-16 have been considered but are moot in view of the new ground(s) of rejection, which have been necessitated by amendment.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- It is unclear what the applicant means by "spare Raman amplifier," and should the applicant construe its meaning to include a spare Raman amplifying fiber, multiplexer coupler and pumps, then the applicant has failed to disclose how these spare Raman amplifiers are attached to the rest of the apparatus.
- It is also unclear what the applicant means by "n-number."
- The phrases "at said first/second wavelength" lack antecedent basis. The applicant has antecedent basis for "first/second light sources" but does not claim those sources having different wavelengths.

- The applicant does not claim in what manner the first and second light sources are connected to the Raman transmission fiber. (e.g. forward/backward pumping, wavelength etc.)

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Namiki et al. (USPAP No. 2002/0167719) in view of Pederson et al. (USPAP No. 2001/0050802), Lauder et al. (USPAP No. 2002/0109896), and Hempstead (USPAP No. 2001/0118447).

- Regarding claims 11, and 16, as best understood by the examiner, Namiki discloses an optical amplification method in an optical transmission system, including a plurality of first light sources for Raman amplification that amplify signal light transmitted in said optical transmission line and a plurality of second light sources for Raman amplification that are disposed at the positions adjoining respective ones of said plurality of first light sources for Raman amplification via said optical transmission line, comprising the steps of:
  - amplifying said signal light by said first and second light sources for Raman amplification; [¶ 0098]
  - transmitting said amplified signal light through said optical transmission line;
  - detecting a deteriorated state of said signal light amplified by one or more of said first and/or second light sources for Raman amplification; and [¶ 0114]

But fails to disclose:

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- providing a single spare Raman amplifier operating at said first wavelength for each n-number of said first Raman amplifiers, and a single spare Raman amplifier operating at said second wavelength for each n-number of said second Raman amplifiers;
- restoring said deteriorated signal light to an un-deteriorated state by emitting spare pumping light from a spare pumping light from at least of said spare pumping light sources.
- spare pumping light sources being operated only when required to restore deteriorated signal light.

However it is well known in the art (Abstract of Pederson, Lauder [¶ 0006] [¶ 00021], and Hempstead [¶ 0014-0016]) to use spare pumping lights in a Raman amplifier and turn them on when a primary pumping light becomes defective.

These spare pumps would be easily compatible with the control method of Namiki. Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to provide spare pumping lights in the invention of Nimiki, and turn them on when a primary pump caused a deteriorated state in the amplifier output, for the advantage of continued amplifier operation in the case of all primary pumps failing.

- Regarding claim 12, Namiki discloses an optical amplification method in an optical transmission system in accordance with claim 11, wherein: responsive to a deteriorated state of said amplified signal light, said spare pumping light is emitted from said spare pumping light source so that the output level of said

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signal light becomes the same output level before said deterioration. [Namiki, ¶ 0103]

- Regarding claim 13, Namiki discloses an optical amplification method in an optical transmission system in accordance with claim 11, wherein: responsive to a deteriorated state of said amplified signal light, said spare pumping light is emitted from said spare pumping light source so that the gain wavelength characteristic of said signal light becomes the same gain wavelength characteristic before said deterioration. [Namiki, ¶ 0103]
- Regarding claim 15, Namiki, Hempstead, Lauder and Pederson disclose an optical amplification method in an optical transmission system in accordance with claim 11, wherein: outputs from said pumping light source and said spare pumping light source are controlled by respective control circuits in said one or more first and second light sources for Raman amplification. [Namiki ¶ 0103]

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Namiki in view of Pedersen, Hempstead and Lauder as applied to claim 11 above. Namiki, Pedersen, Hempstead and Lauder disclose the invention with all the limitations of claim 11 above, but in addition Pedersen teaches:

- said first and second light sources emit light at respective first and second wavelengths, and at least one spare pumping light for each of said first and second wavelengths. [Abstract]

Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to provide at least one spare pump light for each

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pump light, for the advantage of retaining normal operation in the event of a total failure of every primary pump light source.

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

10. The references made herein are done so for the convenience of the applicant. They are in no way intended to be limiting. The prior art should be considered in its entirety.

11. The prior art which is cited but not relied upon is considered pertinent to applicant's disclosure.



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12. As to limitations which are considered to be inherent in a reference, note the case law of In re Ludtke, 169 U.S.P.Q. 563; In re Swinehart, 169 U.S.P.Q. 226; In re Fitzgerald, 205 U.S.P.Q. 594; In re Best et al, 195 U.S.P.Q. 430; and In re Brown, 173 U.S.P.Q. 685, 688.


13. While patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of claims. See In re Mraz, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ari M. Diacou whose telephone number is (571) 272-5591. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AMD 4/11/2006

  
JACK KEITH  
SUPERVISORY PATENT EXAMINER